

a' amended.

the example of FIGURE 4a the piezoelectric plate 22 is adhesively attached to the conductive backing block assembly 50 which contains embedded flex circuits 12a, 12b, and 12c, but could also comprise backing plates with etched conductors as described above. Unlike the example of FIGURE 3, in this embodiment there are no gold plated electrodes between the piezoelectric plate and the assembly 50; the piezoelectric is simply attached to the finished surface of the assembly 50. In FIGURE 4b the piezoelectric plate 22 is diced in the elevation dimension to form columns of piezoelectric material across the backing block and its rows of flex circuit 12a, 12b, and 12c. These dicing cuts 30 are made in line with conductive traces on the underlying flex circuit so that the ends of the traces are located in the bottoms of the cuts 30. In FIGURE 4c the lateral, opposing walls 32 within the cuts 30 are plated with electrode material, which may be applied by wet plating, evaporation, or a sputtering process. This electrode material lines both lateral piezoelectric walls 32 of the dicing cuts 30, as well as the bottom of the cut where the conductive traces end. Thus, this electroding electrically connects the conductive traces in the bottom of the cuts to the lateral sides of the piezoelectric on either side of the respective cuts.

REMARKS

A paragraph of the specification has been amended to replace an application serial number with the number of the corresponding issued patent.

Claims 1-11, 13-16 and 28-32 were rejected under 35 U.S.C. §102(b) as being anticipated by US Pat. 4,825,115 (Kawabe et al.) Kawabe et al. illustrates the conventional way to make a backing for a transducer array, which is to pour a casting material behind the array to mold the backing. Kawabe et al. complicate the casting process by first soldering rows of flex circuit to all of the elements of the array, then folding them perpendicular to the array. This process is undesirable because it must be done with an array which has been at least partially processed and can become contaminated or damaged by the casting process.

The invention of Claim 1 overcomes this problem. Claim 1 describes a two dimensional ultrasonic transducer array probe comprising a two dimensional array of ultrasonic transducer elements having a bottom surface from which undesired ultrasonic energy is emitted; and a conductive backing block assembly affixed in opposition to the bottom surface of the two